

Applicant : C. Tondering
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Amendments to the Claims:

This listing of claims replaces all prior listings:

- E
1. (Currently amended) A method of ~~managing usage of a resource in a network system, the method comprising:~~
~~indicating a value representing a total amount of current usage of the resource by at least two processes using the resource;~~
~~indicating an available amount of credit for usage of the resource by the at least two processes based on said value;~~
~~decreasing said value according to a predetermined function of time; and~~
~~regulating usage of the resource by the at least two processes based on the indicated available amount of credit and allowing increased further usage of the resource by the at least two processes based on said decreasing of said value~~
representing, by a current usage value, a total amount of a resource that is managed by a software tool and is currently in use by at least two processes;
changing the current usage value, the changes taking account of decreases of the current usage value according to a function of time; and
in connection with additional use of the resource by one of the processes, and at a time when increases in the current usage value by the amount of additional use does not exceed a specified maximum resource usage level, increasing the current usage value by the amount of additional use, and allowing the additional use of the resource by the process.
 2. (Currently amended) The method of claim 1, wherein the resource comprises one of memory space ~~[[or]]~~ and system processor time.

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3. (Previously Presented) The method of claim 1, wherein the network comprises an embedded computer system.

4. (Original) The method of claim 1, wherein the network operates in a real-time networking environment.

5. (Currently amended) The method of claim 1, wherein the ~~method~~ software tool is modeled as a leaky bucket.

E 6. (Previously Presented) The method of claim 1, further comprising:
determining a priority of the resource; and
allocating the resource based on the priority of the resource.

7. (Currently amended) The method of claim 1, ~~wherein regulating usage of the resource comprises modifying the available credit by~~ further comprising adjusting [[a]] the specified maximum resource usage value level.

8. (Currently amended) The method of claim 1, further comprising[[],] ~~notifying a process of the availability of the credit when the indicated available credit is greater than a requested usage amount if the indicated available credit is initially less than the requested usage amount~~ the process that additional use of the resource is allowed when increasing the current usage value by the amount of additional use does not exceed the specified maximum resource usage level.

9. (Currently amended) The method of claim 8, wherein notifying the process comprises sending a message to a network address associated with the process ~~when the requested usage amount is greater than the available credit.~~

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10. (Currently amended) A method of managing a plurality of resources in a network having a plurality of devices, comprising:

~~for each resource in the network, indicating a value representing a total amount of current usage of the resource by at least two devices;~~

~~for each of the plurality of resources accessed by each of the devices, creating a software tool on the device for accessing the resource, and using the software tool to indicate an available amount of credit for usage of the resource by the device, said amount of credit being based on said value;~~

~~decreasing said value according to a predetermined function of time; and~~

~~regulating the usage of any of the plurality of the resources by any of the plurality of devices as a function of the indicated available amount of credit and allowing increased further usage of the resource by the device based on said decreasing of said value.~~

in a network having resources that are accessed by devices, for each resource, creating a software tool on each device that uses the resource to manage usage of the resource by the device; and

for each software tool,

using a current usage value to represent a total amount of the resource that is managed by the software tool and is currently in use by the devices,

changing the current usage value, the changes taking account of decreases of the current usage value according to a function of time; and

in connection with additional use of the resource by one of the devices, and at a time when increasing the current usage value by the amount of additional use does not exceed a specified maximum resource usage level, increasing the current usage value by the amount of additional use, and allowing the additional use of the resource by the device.

11. (Currently amended) The method of claim 10, wherein creating the software tool comprises: allocating a descriptor representative of ~~any of the software tools to any~~ the software tool for each of the plurality of devices accessing the resource managed by the software tool.

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12. (Currently amended) The method of claim 10 ~~[[11]]~~, ~~wherein using the software tool comprises further comprising:~~

decrementing the maximum resource usage level of the software tool in response to the use of the resource associated with the software tool by any device ~~of the plurality of devices;~~
~~calculating the available amount of credit based on the usage of the resource associated with the tool as a function of the maximum usage level; and~~
~~indicating to a device waiting to use the resource associated with the tool of the available amount of credit.~~

E 13. (Currently amended) The method of claim 12 ~~32~~, ~~wherein indicating to the device comprises further comprising~~ sending a message to a network address associated with the ~~waiting a device waiting to use the resource to indicate when the available~~ amount of resource exceeds a specified usage level.

14. (Previously Presented) The method of claim 12, further comprising incrementing the maximum usage level to be equal to or more than a usage level requested by the device.

15. (Currently amended) The method of claim ~~[[11]]~~ 12, further comprising overriding the maximum usage level to allow a device access to one of the plurality of resources.

16. (Original) The method of claim 10, further comprising destroying the software tool in response to a request from one of the devices.

17. (Currently amended) ~~Computer software, residing on a computer-readable medium at a device connected to a network, comprising instructions to cause the device to perform the following operations~~ A machine accessible medium, which when accessed results in a machine performing operations comprising:

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~~indicating a value representing a total amount of current usage of a resource in the network system by at least two devices;~~
~~indicating an available amount of credit for usage of the resource based on said value;~~
~~representing, by a current usage value, a total amount of a resource that is managed by a software tool and is used by at least two devices~~
~~decreasing said value according to a function of time; and~~
~~regulating usage of the resource by the device as a function of the indicated available amount of credit and allowing increased further usage of the resource by the device based on said decreasing of said value~~
~~changing the current usage value, the changes taking account of decreases of the current usage value according to a function of time; and~~
~~in connection with additional use of the resource by one of the devices, and at a time when increasing the current usage value by the amount of additional use does not exceed a specified maximum resource usage level, increasing the current usage value by the amount of additional use, and allowing the additional use of the resource by the process.~~

18. (Currently amended) A network including a plurality of devices, comprising:
a plurality of resources running in the network; and
computer software, residing on a computer readable medium at each device accessing the plurality of resources to cause the device to perform the following operations:
~~indicating a value representing a total amount of current usage of a resource by at least two devices;~~
~~indicating an available amount of credit for usage of the resource based on said value;~~
~~decreasing said value according to a predetermined function of time; and~~
~~regulating usage of the resource by the device as a function of the indicated available amount of credit and allowing increased further usage of the resource by the device based on said decreasing of said value.~~

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representing, by a current usage value, a total amount of a resource that is managed by a software tool and is used by at least two devices;

changing the current usage value, the changes taking account of decreases of the current usage value according to a function of time; and

in connection with additional use of the resource by one of the devices, at a time when increasing the current usage value by the amount of additional use does not exceed a specified maximum resource usage level, the current usage value is increased by the amount of additional use and the additional use of the resource by the process is allowed.

E 19. (Previously Presented) The network of claim 18, wherein the plurality of resources comprise memory space or system processor time.

20. (Previously Presented) The network of claim 18, wherein the network comprises an embedded computer system.

21. (Previously Presented) The network of claim 18, wherein the network operates in a real-time networking environment.

22. (Currently amended) The method of claim 1 ~~wherein the available amount of credit comprises a difference between a second value representing a maximum resource usage allocated to the at least two processes and the first value representing the total amount of usage of the resource currently used by the at least two processes,~~ further comprising calculating an available amount of credit by a difference between the maximum resource usage level and the current usage value.

23. (Currently amended) The method of claim 1 wherein ~~the available amount of credit increases~~ decreases of the current usage value as a function of time comprises decreases of

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the current usage value per unit of time by an estimated value of the resource that becomes available per unit of time.

24. (Cancelled)

25. (Previously Presented) The method of claim 1, further comprising:
determining a priority of a process accessing the resource; and
allocating the resource based on the priority of the process.

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26. (Currently amended) The method of claim 1 in which ~~decreasing said value according to a function of decreases of the current usage value as a function of time~~ comprises decreasing said value decreases of the current usage value by a preset amount per unit of time.

27. (Currently amended) The method of claim 26 ~~in which regulating usage of the resource by the at least two processes comprises~~ further comprising regulating [[usage]] use of the resource based on [[said]] the decreasing of [[said]] the current usage value so that the total amount of further usage use of the resource does not exceed the preset amount per unit of time.

28. (Previously Presented) The method of claim 26 in which the preset amount represents an estimated amount of resource that becomes available per unit of time.

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29. (New) The method of claim 1, further comprising, if increasing the current usage value by the amount of additional use exceeds a specified maximum resource usage level, waiting for a period of time until the current usage value decreases to below a level such that increasing the value based on the amount of additional use does not exceed the specified maximum resource usage value.

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30. (New) The method of claim 1 in which the decreases of the current usage value is independent of the amount of use of the resource by the processes.

31. (New) The method of claim 10 in which different software tools on different devices that are associated with a common resource have different specified maximum resource usage levels.

E² 32. (New) The method of claim 12, further comprising providing a device waiting to use the resource information on the amount of resource that is available based on a difference between the maximum resource usage level and the current usage value.

33. (New) The machine accessible medium of claim 17, wherein the resource comprises one of memory space and system processor time.

34. (New) The machine accessible medium of claim 17, wherein the software tool is modeled as a leaky bucket.

35. (New) The machine accessible medium of claim 17, which when accessed results in the machine performing operations comprising adjusting the specified maximum resource usage level.